CLAIM AMENDMENTS:

1-11 cancelled

12. (currently amended) A method for calibrating a camera-laser-unit with respect to at least one calibration-object disposed at a given position and orientation in three-dimensional space, the camera-laser-unit having at least one laser and at least one camera, wherein the laser and the camera are disposed at a given distance with respect to one another, and an optical axis of the laser and an optical axis of the camera subtend a given angle (α), the camera-laser-unit being adapted to record a location, shape and/or dimensions of a measurement-object, the method comprising the steps of:

    a) selecting a calibration-object having at least two planes disposed at a given angle (β) with respect to each other, each plane having a given, non-coplanar calibration-pattern;
    b) disposing the calibration-object at a given position and orientation in three-dimensional space with respect to the camera-laser-unit, wherein an orientation of the calibration-object is such that light emitted by the laser is visible to the camera on the at least two planes of the calibration-object;
    c) ~~calibrating~~determining a location of the camera with respect to the calibration-object using a Tsai algorithm;
    d) calibrating the camera in three-dimensional space using the results of steps b) and c);
    ~~d) activating~~e) activating the laser to emit light visible on the at least two planes of the calibration-object;

~~e) recording~~f) recording the light on the two planes with the camera;

~~f) determining~~g) determining the laser-properties from the light recorded by the ~~camera; and~~camera;

~~g) calibrating~~h) determining a location of the laser relative to the camera; and~~according to the determined laser-properties;~~

i) calibrating the laser in three-dimensional space using the results of steps d) and h).

13. (previously presented) The method of claim 12, wherein step g) comprises the step of defining a relative position and orientation of the laser with respect to a coordinate frame associated with the calibration-object, wherein the coordinate frame has a given position and orientation in three-dimensional space.

14. (previously presented) The method of claim 12, wherein light emitted by the laser is visible on the two planes of the calibration-object as a line on each plane, the lines intersecting at a contact line of the two planes, wherein the laser-properties are determined from the lines recorded by the camera using a line detection algorithm.

15. (previously presented) The method of claim 12, wherein light emitted by the laser is visible on the two planes of the calibration-object as a line on each plane, the lines intersecting at a contact line of the two planes, wherein a laser-plane is defined by an optical axis of the laser and the lines visible on the two planes of the calibration-object, wherein, a position and orientation of the laser-plane with respect to a coordinate frame associated with the calibration-object is defined to calibrate the laser according to determined laser-properties.

16. (previously presented) The method of claim 12, wherein step c) comprises the step of defining a relative position and orientation of the camera with respect to a coordinate frame associated with the calibration-object, said coordinate frame having a given position and orientation in three-dimensional space.

17. (previously presented) The method of claim 12, further comprising defining a transformation matrix in dependence on a relative position and orientation of the camera with respect to a coordinate frame associated with the calibration-object, a relative position and orientation of the laser with respect to the coordinate frame, and/or on internal camera parameters.

18. (previously presented) The method of claim 12, further comprising grasping the camera-laser-unit with an industrial robot and disposing the unit relative to the calibration-object in a given position and orientation in three-dimensional space, wherein an orientation of the camera-laser-unit is such that light emitted by the laser is visible to the camera on the at least two planes of the calibration-object.

19. (cancelled)

20. (previously presented) The device of claim 24, wherein said angle between said two planes of the calibration-object is a right angle.

21. (previously presented) The device of claim 24, wherein features of said calibration-pattern are designed as recesses or as cavities having a circular cross section.

22. (previously presented) The device of claim 24, wherein features of said calibration-pattern comprise prints on said two planes.

23. (currently amended) A device for calibrating a camera-laser-unit with respect to at least one calibration-object disposed at a given position and orientation in three-dimensional space, the camera-laser-unit having at least one laser and at least one camera, wherein the laser and the camera are disposed at a given distance with respect to one another, and an optical axis of the laser and an optical axis of the camera subtend a given angle (α), the camera-laser-unit being adapted to record a location, shape and/or dimensions of a measurement-object, the device comprising:

means for selecting a calibration-object having at least two planes disposed at a given angle (β) with respect to each other, each plane having a given, non-coplanar calibration-pattern;
means for disposing the calibration-object at a given position and orientation in three-dimensional space with respect to the camera-laser-unit, wherein an orientation of the calibration-object is such that light emitted by the laser is visible to the camera on the at least two planes of the calibration-object;
means for ~~calibrating~~determining a location of the camera with respect to the calibration-object using a Tsai algorithm;
means for calibrating the camera in three-dimensional space using results generated by the means for disposing the calibration object and by the means for determining a location of the camera with respect to the calibration-object;
means for activating the laser to emit light visible on the at least two planes of the calibration-object;
means for recording the light on the two planes with the camera;

means for determining the laser-properties from the light recorded by the ~~camera; and~~camera;

means for ~~calibrating~~determining a location of the laser relative to the camera ~~according to the determined laser-properties~~; and

means for calibrating the laser in three-dimensional space using results generated by the means for calibrating the camera in three-dimensional space and the means for determining the location of the laser relative to the camera.

24. (currently amended) The device of ~~claim 24~~claim 23, wherein said non-coplanar calibration-pattern has an array of features, said calibration-object being structured and dimensioned for calibration of the camera as well as for calibration of the laser.